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ON THE TREATMENT OF HYDATID TUMOURS OF THE LIVER.

By JOHN HARLEY, M.D.

Since publishing my last paper on this subject in the 'St. Thomas's Hospital Reports,'[1] only four cases of the disease have come under my care in the hospital. One, the subject of the present remarks; a second, was that of a woman in advanced life, who was admitted jaundiced and moribund into Christian Ward, with what from a superficial view (for she was too near death to allow of my making an examination) appeared to be ascites from malignant disease of the liver. The other two were cases in which the late Dr. Murchison had used simple puncture, one of these was in an extremely urgent condition from extension of the disease, and I transferred him at once to his care. As I am away from the hospital records, I cannot say what was the further progress of this case. The other case, in which eleven ounces of clear fluid were removed by the aspirator, continues under my care, and will probably require operative treatment at some future time.

The case narrated below serves very well to illustrate the treatment of these cases, which I have on former occasions advocated, namely, the establishment of a free opening into the cyst, whether suppuration has occurred or not; the complete evacuation of its contents; and the radical cure of the disease by

[1] Vol. viii, New Series.

contraction and obliteration of the remaining cavity. I believe that I have now arrived at a perfectly safe and satisfactory method of effecting this result. The following is in brief the treatment which I adopt. Thrust a trocar and canula (the larger the better, but not of less dimensions than a No. 12 catheter) into the most prominent part of the tumour, provided that this be, as usual, in one or other hypochondria, or not very distant from it. Assist the escape of such cysts or broken cyst-membrane as may be protruded by the tension of the parts, by a catheter wire formed into a little hook at the end; retain the canula by threads or tapes attached to holes in its shoulder, and well secured to the surface by strips of adhesive plaster; protect against injury from the edge of the canula by the insertion of an elastic catheter, loosely tied to the canula so as to allow of free play in the respiratory and bodily movements. For the next week nothing more need be done in the generality of cases, beyond the occasional removal of the catheter and the teasing out of such cysts as present themselves at the outer orifice of the canula. A week will suffice under these circumstances to effect adhesion between the cyst and the abdominal wall, if this have not already occurred, and it is not possible to predicate what the state of the case may have been before tapping. After the lapse of seven or eight days, when the patient usually begins to experience uneasiness from a return of the tension of the cyst, or from decomposition of its contents, or both, we should evacuate the contents of the cyst. The canula, which has now become loose by suppuration of the wound, should be removed *over* an elastic catheter previously introduced into the cyst; then there will be no difficulty in introducing a large catheter by its side, one always being retained within the cyst as a guide. Having thus provided a free passage into the cyst proceed to evacuate its contents. For this purpose, I have had made large (No. 20) elastic catheters, with a lateral eye about one inch long by one eighth of an inch wide. By means of an ordinary brass syringe with a fine nozzle, cyst-membrane is drawn into the eye of the catheter, and while tension is maintained it is withdrawn, and the cyst thus removed from the sac. By patient and continued repetition of this process, a very large sac may be more or less completely emptied in the course of two or three hours, cyst-membrane of any size and thickness

being easily removed. The lining membrane is not usually separated until the 9th or 12th day. When the sac is free from cyst-membrane, fluid injected by one catheter flows out by the other readily and without hindrance. In some cases a larger trocar and canula may be used, and then the sac may at once be more or less completely emptied by the use of a No. 20 catheter as above described; but, as a rule, there is no need of such haste.

As an aid in clearing away the cyst-membrane a weak solution (1 in 60) of carbolic acid may be freely injected provided that as much fluid passes out of the sac as is injected into it, and that no undue tension of the cyst occurs at any time from lack of a sufficient reflux. As an *aid* I have said carbolic acid may be so employed, but its use or that of creasote, as long as any cyst-membrane remains in the sac, will be necessary in order to prevent decomposition of the fluids (bile and serous liquid chiefly), which are rapidly passed out when the tension of the tumour is decidedly reduced. For some days it will be necessary to wash out the sac twice a day, a pint or more of the carbolic-acid water being used until it flows out colourless. After the cyst-membrane is discharged, once a day will suffice, and when we are satisfied that the lining membrane has come away, the discharges being sweet, there will be no further need of the injection of antiseptics. All catheters (sometimes I have inserted two or three small ones by the side of the largest in order to keep the passage to the sac sufficiently open) excepting the large one may now be removed. This, too, should be removed, washed and oiled, and then replaced, once a day. It should be passed to the furthest limits of the sac, and then before fixing the tapes a play of about an inch should be given to allow of the contraction of the cyst. As this occurs, the catheter may be occasionally shortened. It is necessary to pay attention to the directions just mentioned, for if the sinus be allowed to heal before the cyst has healed it may become dilated into an abscess. Such a result came under my notice two years ago. A young girl who had been under the care of my late colleague Dr. Murchison was sent out of the hospital before the sac had healed, and with directions to keep the piece of drainage-tube inserted, and present herself from time to time, failed

to observe these directions, and, as the sinus healed a few days after she discarded the drainage-tube, she considered herself well, but after an interval of a few weeks she presented herself suffering from pain in the hypochondrium and slight pyrexia. The sinus had partially opened a day or two before her readmission, but there was pain and tension in the seat of the original tumour, and on dilating the sinus the catheter passed a distance of eight inches, and communicated with a cavity which discharged about six ounces of pus. Although a fair amount of attention was subsequently paid to this case the healing was slow, and it was fully six months before it was completed. The patient, however, remained in good health during the process.

In the case given below, some of the more important matters relative to treatment are well illustrated, and it may be conceded that the injection of antiseptics was continued too long. This, however, was an error on the right side.

I am greatly indebted to my friend Dr. Ballance, who was then acting as my house physician, for his attention to this case.

Hydatid tumour of the liver of about eight years' duration; suppuration in consequence of a fall; puncture; complete evacuation of the contents of the cyst on the eighth and tenth days; maintenance of the opening; gradual contraction of the sac; healing by the seventieth day; radical cure.

July, 1881.—Catherine M—, æt. 44, a healthy woman of dark complexion, the mother of three children, one of whom, the youngest, aged five, is living. Her husband has been dead three years, and there has been no conception since the birth of the last child, but for the last seven or eight years she has had retching of clear bitter water, resembling the morning sickness of pregnancy, accompanied by "fearful pain in the left shoulder." In childhood she had scarlet fever, measles, and whooping-cough. Her only illness since was an attack of pneumonia, with which she was laid up a month.

The symptoms of her present illness began eight months ago. They were, pain in the lower part of the right chest, anorexia, especially on rising in the morning, irregular

action of the bowels with deficieney of bile, progressive swelling of the abdomen, with inerease of the pain both in degree and duration. At the end of June, 1881, she fell downstairs, and thus brought her troubles to a elimax. She was admitted into Christian Ward three weeks afterwards (on 20th July, 1881), having suffered severe pain and distress in the interim.

On admission her temperature was 102·8°, her expression anxious. She complained of vomiting, and of pain and swelling of the right side. A dry cough increased her distress, and the breathing was a little aceelerated. The lower ribs of the right side were bulged forwards by a tense, dull, very obseurely fluetuating, extremely tender tumour, whieh invaded the right hypoehondrium and epigastrium. Measurement of the side showed an increase of two inehes; the lower edge of the liver eorresponded to a line about one and a half above the umbilieus. There was complete dulness of the ehest at the base of the right lung behind, with pneumonie crepitation and broneophony, except at the lowest part, whcre the breath sounds were absent. The pulse was 120.

Hydatid eyst of the liver pushing up and irritating the inferior lobe of the right lung was diagnosed, and as the symptoms had become urgent a No. 12 troear was passed into the eyst through the right hypoehondrium under thc rib-margin, nearly in a line with the nipple, within four hours of her admission into the hospital.

A large number of cysts, some of which were moistened with pus, protruded. The canula was rctained, the edge being guarded by thc insertion of an elastic eatheter, and for thc ncxt four days a large number of eysts were diseharged with a moderate amount of sweet yellow pus, a hooked wire being oecasionally used to aid their eseape.

On the fourth day the canula was removed over an elastic eatheter previously inserted, and a seeond catheter (No. 3) then passed into the sae by the side of the othcr. As but little discharge escaped through the catheters the eanula was again slipped into the sac over one of them on thc day following, and mueh eyst evacuated. Thc diseharge for the next few days was rathcr seanty, and was becoming fœtid.

On the eighth day, therefore, thc canula being again removed over a No. 5 elastie catheter, a No. 20 elastic

catheter was easily introduced by its side, and then by means of a fine-nozzled 4-oz. brass syringe, cyst-membrane was readily drawn through the wide eye of this large catheter, aspiration being sustained during the act and quantities of very large and thick cyst-membrane were drawn out of the wound every time the catheter was withdrawn. As the catheter could be readily passed by the side of the guiding one into the cyst this process was kept up for about three hours, and until nearly a quart of hydatid cyst, moistened with fœtid pus, was removed; an ounce or two of carbolic-acid water (1 to 20) was then injected and removed, the process being repeated until about a quart had been used and the fluid came away clear. The cyst being thus fairly emptied very great relief was experienced, and by daily repetition of the process for the next two days about as much more cyst-membrane, some very large, was removed, and this was accompanied by a discharge of yellow bile.

The cyst was now completely emptied, and for the next three weeks it was daily washed out with carbolic-acid water, and then, as there was some evidence of carbolic-acid poisoning, with a weak solution of chlorinated soda, the fluid readily flowing from one catheter as it was injected by the other.

On the thirty-eighth day the catheter passed a distance of eight inches, and the cyst held about five ounces of fluid without discomfort.

Fifteen days later the cyst was reduced to half its size, the discharge was normal pus and small in quantity. The larger tube was alone retained and shortened from time to time as the cyst contracted.

On the seventieth day after the primary insertion of the canula, the sinus had quite healed and the surrounding abdomen and rib margin was normal and bore deep pressure without inconvenience, resonant below, and normal liver dulness above.

She was discharged quite well on the eighty-eighth day.

On admission there were signs of pneumonia, but as the cyst was a large one and pushed the diaphragm upwards, it was not possible to accurately determine the amount. All her symptoms were relieved by the evacuation of the contents of the cyst, the temperature becoming normal except occasionally in the evening when it twice or thrice rose to 101°. On the

fourteenth day it attained 102·6°, and this was associated with the development of a little pneumonia with rust-coloured expectoration in the upper lobe of the right lung. A week later this had subsided and remained normal until the sixty-fourth day when it rose to 102·4°, as a result of a slight attack of quinsy.

At the time she left the hospital the lungs were quite healthy and she was in good condition with a healthy colour.

I saw her from time to time during the next six months and again in July of the present year, two years after the cyst was opened. From the time she left the hospital up to the present hour she has had excellent health without interruption; and being quite free from her old disabling sickness and pain, has led an active life of hard physical labour. On examination at this date (July 20th, 1883) I find the chest normally resonant, and the expansion and sounds of the right lung full and normal to its base. Owing to the chronic curvature of the bony ribs over the situation of the tumour, there is a slight increase ($\frac{3}{4}$ inch) in girth round this side as compared with the left, and there is a larger amount of resonance in the region of the liver than normal. The abdomen and right hypochondrium are very supple and bear free manipulation without any discomfort. No trace of tumour or induration can be felt. A large scar, nearly as large as the navel, is retracted close under the margin of the ribs in a vertical line with the right nipple.

In my former communications ('Medico-Chir. Trans.,' vol. xlix, and 'St. Thomas's Hosp. Rep.,' vol. viii, p. 3) I have reduced the literature of the subject into synoptical tables and have drawn some general conclusions from them. I am sorry that my time and opportunities do not allow me to do more on the present occasion than notice those communications which I have received through the courtesy of their authors.

In Mr. Lawson Tait's tables,[1] Nos. 22, 24, 28, 57, and 80, are cases of hepatotomy for hydatids of the liver. These all show the advantage of making a free opening—a practice which I have always advocated,—and there can be no doubt that abdominal section and hepatotomy will always be attended

[1] "An Account of 110 Consecutive Cases of Abdominal Section." Reprinted from the 'Med. Times and Gaz.,' Nov. 5th and 26th, 1881.

with better results than simple tapping or efforts to secure the discharge of the hydatids by an orifice too narrow for the purpose. In my opinion, a hydatid tumour should never be punctured unless the operator have determined to evacuate its contents within the eight or twelve days next ensuing, by some means or another.

The case which I have given above has proved to me how easily, by means of a wide-eyed catheter and a syringe, this may be effected. For cysts that can be safely reached by the trocar, abdominal section is therefore out of the question, and its adoption in an ordinary case may be compared with the action of the Scotch laird who, to get a bundle of sticks to boil his tea-kettle, is said to have cut down a tree.

Dr. Mortimer Balding [1] has given an account of four cases:

Case 1.—M—, æt. 45, an indistinctly fluctuating tumour of the right hypochondrium. A week before admission into Somerset Hospital, Cape Town, he began to suffer rigors and night sweats, and the tumour became tender. About four days after, a small puncture was made, and pus escaped in small quantity. The wound was closed. Four days later a puncture was again made with a large trocar, twenty-six ounces of pus with hydatid cysts drawn off, and the wound again closed. He was relieved at the time, but died within the year.

With such treatment such an event was to be expected.

Case 2.—F—, æt. 29. Tumour of the liver occupying the right hypochondrium. After an exploratory aspiration, the introduction of a large canula and trocar, release of forty-six ounces of offensive thick pus with hydatid cysts. The canula was retained, and the cavity washed with disinfecting fluid for the next four or five weeks, when contraction and healing took place. She was seen five years afterwards, and a radical cure was effected. I might consistently append my comment on Case 1 to this also—"With such treatment such an event was to be expected."

Case 3.—M—, æt. 35. A large fluctuating tumour of the right hypochondrium with slight jaundice. Puncture with a large

[1] 'Hydatid Disease of the Liver, its Diagnosis and Treatment. A Thesis for the Degree of M.D. Cantab.' London: Harrison and Sons.

troear, retention of tube, and gradual enlargement of the opening by means of eatheters. Diseharge of large quantities of purulent débris of hydatid eysts; shortly afterwards eruption of the same fluid through the lung eontinuing for several weeks. The drainage-tube in the wound was opened only occasionally for the discharge of pus and the injection of antisepties, for air was apt to be drawn into the lung through this channel, causing great pain. The diseharges in both direetions gradually deereased, and, eight months after the puncture, the radieal eure was eompleted.

Suppurated hydatids of the liver, when they are near the diaphragm, perforate it, and very rapidly diseharge their eontents into the bronehia. This is one of the strongest arguments for a free opening—or, I would rather say, for the speedy emptying of the eyst through a suffieient opening by the means I have indieated above.

Case 4.—F—, æt. 36. Tumour of right hypoehondrium. Simple puneture and removal of 148 ounees of fluid. Two years after, a return of her diseomfort, and two years later still she again eame under treatment.

During the next two months the tumour was punetured several times with various sized troears, but on no oeeasion was there mueh fluid drawn off, and as the diseharge did not prevent it the wounds rapidly elosed. The last wound was enlarged by a bistoury and thirty ounees of offensive pus drawn off and the eavity washed out daily, but she died ten days afterwards. The sinus was found to pass upwards and backwards into an old hydatid cyst oeeupying the position of the lower lobe of the right lung, destroying the diaphragm and the greater part of the right lobe of the liver, the right lung being compressed and the heart pushed over to the left.

The result in this ease may be taken as typieal. If the operator had followed the treatment whieh I have so long advocated at the outset, the patient, I dare say, would have been alive at the present time. Simple tapping is a proeeeding that gives nobody mueh trouble, although oeeasionally fatal it is rarely dangerous, it satisfies the diagnosis, gives immediate relief, and often lulls the patient into a feeling of seeurity. Fortunately for the patient it often sets up purulent inflam-

mation in the sac, a condition which calls too loudly for relief to be neglected. But in those cases, or, at least, in most of them—my observation bids me say in all—where a cure seems to have been effected, the disease progresses insidiously just as it did at first, but sooner or later declares itself in a more extended form. Old hydated cysts, like the corms of the colchicum or the crocus, readily produce a new one by their side. I hold it therefore to be bad practice, and, on the evidence, unjustifiable practice, to approach a hydatid cyst with any other intention than that of completely emptying it and healing up the space that held it.

Dr. Jonas Jonassen, of Reykjavik, Iceland, has obligingly sent me through Dr. Magnusson, of Cambridge, his 'Doctor's Thesis on the Echinococcus Disease of Iceland.'[1] He gives an account of seventy-four cases, many of which are hydatids of the liver. If my knowledge of Icelandic had been sufficient for the purpose, or if I could have secured the services of an interpreter in time for this paper, I would have given a synopsis of these cases. Under the circumstances I am obliged to be content with calling attention to Dr. Jonassen's interesting treatise.

Postscript to Case 1, *p.* 306, *vol. viii*, '*St. Thos. Hosp. Rep.*'—Shortly after leaving the hospital, in May, 1878, the patient married, and on 28th of June, 1883, she wrote to me in part as follows:—"In March last my husband died after a long illness. I have three little children. With regard to my health, I may just say that, with all the extra pressure upon both mind and body, I have not been laid aside even for a day. My restoration has been perfect."

[1] 'Ekinokoksygdommen, belyst ved Islandske Lægers erfaring.' Copenhagen, 1882.

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